What is Claimed is:

1. A light modulation apparatus comprising:

a liquid crystal device; and

a polarizing plate disposed in an optical path of light made incident on said liquid crystal device;

wherein said liquid crystal device is of a guest-host type using a negative type liquid crystal as a host material.

2. A light modulation apparatus according to claim 1, wherein said negative type liquid crystal of said liquid crystal device has a negative type dielectric constant anisotropy and a guest material of said liquid crystal device is a positive or negative type dichroic dye molecular material, and said polarizing plate is movable in or from the optical path.

3. A light modulation apparatus according to claim 2, wherein said polarizing plate is disposed in a movable portion of a mechanical iris, and is movable in or from the optical path by operation of said movable portion of said mechanical iris.

4. A light modulation apparatus according to claim 1, wherein a cell of said liquid crystal device has a gap thickness of 5 μm or less.

5. A light modulation apparatus according to claim

1, wherein an alignment film of said liquid crystal device is rubbed by an anti-parallel rubbing process.

6. A light modulation apparatus comprising:

a liquid crystal device;

a drive pulse generation unit for driving said liquid crystal device; and

a pulse width control unit for modulating a pulse width of each drive pulse to be applied to said liquid crystal device, thereby controlling a transmittance of light made incident on said liquid crystal device.

7. A light modulation apparatus according to claim 6, wherein the pulse width of each drive pulse is modulated with its pulse height kept constant.

8. A light modulation apparatus according to claim 6, wherein an average per unit time of positive and negative pulse heights of drive pulses applied between drive electrodes of said liquid crystal device upon modulation of the pulse width of each drive pulse is preferably nearly zero.

9. A light modulation apparatus according to claim 6, wherein the modulation of the pulse width of each drive pulse is performed in such a manner that the waveform of each drive pulse is present in a period of a basic frequency.

10. A light modulation apparatus according to claim 9, wherein the basic frequency and the modulated pulse width are adjusted in such a manner as to prevent the occurrence of flicker in stationary drive of said light modulation apparatus.

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11. A light modulation apparatus according to claim 9, further comprising a drive circuit unit, wherein each drive pulse whose waveform is present in the period of the basic frequency is generated in synchronization with a clock generated by said drive circuit unit.

12. A light modulation apparatus according to claim 11, further comprising a control circuit unit, wherein luminance information of the light emerged from said liquid crystal device is fed back to said control circuit unit, and the pulse width of each drive pulse is modulated in synchronization with a clock generated by said drive circuit unit on the basis of a control signal supplied from said control circuit unit.

13. A light modulation apparatus according to claim 6, wherein said liquid crystal device is a guest-host type liquid crystal device.

14. A light modulation apparatus according to claim 13, wherein a host material is a negative or positive type liquid crystal having a negative or

positive type dielectric constant anisotropy.

15. A light modulation apparatus according to claim 13, wherein a guest material of said liquid crystal device is a positive or negative type dichroic dye molecular material having a positive or negative type light absorption anisotropy.

16. A light modulation apparatus according to claim 6, further comprising a polarizing plate disposed in an optical path of light made incident on said liquid crystal device.

17. A light modulation apparatus according to claim 16, wherein said polarizing plate is movable in or from the optical path.

18. A light modulation apparatus according to claim 17, wherein said polarizing plate is disposed in a movable portion of a mechanical iris in such a manner as to be movable in or from the optical path by operation of said movable portion of said mechanical iris.

19. A light modulation apparatus according to claim 6, wherein a drive electrode of said liquid crystal device is formed at least over the entire region of an effective light transmission portion.

20. A light modulation apparatus comprising:

a liquid crystal device; and

a pulse control unit for changing the transmittance of light made incident on said liquid crystal device from a current transmittance into a target transmittance by applying drive pulses controlled with at least two-steps to said liquid crystal device.

21. A light modulation apparatus according to claim 20, wherein a pulse height of each drive pulse is controlled with at least two-steps.

22. A light modulation apparatus according to claim 20, wherein a pulse width of each drive pulse is controlled with at least two-steps.

23. A light modulation apparatus according to claim 20, further comprising a drive circuit unit, wherein the drive pulse is generated in synchronization with a clock generated by said drive circuit unit.

24. A light modulation apparatus according to claim 23, further comprising a control circuit unit, wherein luminance information of the light emerged from said liquid crystal device is fed back to said control circuit unit, and the drive pulse is generated in synchronization with a clock generated by said drive circuit unit on the basis of a control signal supplied from said control circuit unit.

25. A light modulation apparatus according to

claim 20, wherein said liquid crystal device is a guest-host type liquid crystal device.

26. A light modulation apparatus according to claim 25, wherein a host material of said liquid crystal device is a negative or positive type liquid crystal having a negative or positive type dielectric constant anisotropy.

27. A light modulation apparatus according to claim 25, wherein a guest material of said liquid crystal device is a positive or negative type dichroic dye molecular material having a positive or negative type light absorption anisotropy.

28. A light modulation apparatus according to claim 20, further comprising a polarizing plate disposed in an optical path of light made incident on said liquid crystal device.

29. A light modulation apparatus according to claim 28, wherein said polarizing plate is movable in or from the optical path.

30. A light modulation apparatus according to claim 29, wherein said polarizing plate is disposed in a movable portion of a mechanical iris in such a manner as to be movable in or from the optical path by operation of said movable portion of said mechanical iris.

31. A light modulation apparatus according to claim 20, wherein a drive electrode of said liquid crystal device is formed at least over the entire region of an effective light transmission portion.

32. A light modulation apparatus comprising:

a liquid crystal device;

a detection unit for detecting the intensity of transmission light having passed through said liquid crystal device or an environmental temperature of said liquid crystal device;

a control circuit unit for setting a target intensity of the transmission light depending on the environmental temperature of said liquid crystal device on the basis of a detection value supplied from said detection unit; and

a drive signal generation unit for generating a drive signal used for generating the target intensity of the transmission light.

33. A light modulation apparatus according to claim 32, wherein the transmittance is controlled by monitoring the transmission light, feeding back the detection information to the control circuit unit, and adjusting the intensity of the transmission light at a constant value on the basis of the detection information

by said control circuit unit, or by monitoring an environmental temperature of said liquid crystal device, feeding back the detection information to said control circuit unit, comparing the detection information with a predetermined characteristic value, and adjusting the intensity of the transmission light at a constant value on the basis of the compared detection information by said control circuit unit.

34. A light modulation apparatus according to claim 32, wherein said control circuit unit generates each drive pulse having an AC waveform whose pulse height is modulated, or each drive pulse whose pulse width or pulse density is modulated.

35. A light modulation apparatus according to claim 33, wherein the pulse width of each drive pulse having a basic waveform is modulated and the pulse height of the drive pulse is controlled depending on the environmental temperature of said liquid crystal device, or the pulse height of each drive pulse having a basic waveform is modulated and the pulse width of the drive pulse is modulated depending on the environmental temperature of said liquid crystal device.

36. A light modulation apparatus according to claim 32, wherein each drive pulse is generated in

synchronization of a clock generated by said drive circuit unit.

37. A light modulation apparatus according to claim 32, wherein said liquid crystal device is a guest-host type liquid crystal device.

38. A light modulation apparatus according to claim 37, wherein a host material is a negative or positive type liquid crystal having a negative or positive type dielectric constant anisotropy.

39. A light modulation apparatus according to claim 37, wherein a guest material of said liquid crystal device is a positive or negative type dichroic dye molecular material having a positive or negative type light absorption anisotropy.

40. A light modulation apparatus according to claim 35, further comprising a polarizing plate disposed in an optical path of light made incident on said liquid crystal device.

41. A light modulation apparatus according to claim 40, wherein said polarizing plate is movable in or from the optical path.

42. A light modulation apparatus according to claim 31, wherein said polarizing plate is disposed in a movable portion of a mechanical iris in such a manner as

to be movable in or from the optical path by operation of said movable portion of said mechanical iris.

43. A light modulation apparatus according to claim 32, wherein a drive electrode of said liquid crystal device is formed at least over the entire region of an effective light transmission portion.

44. An image pickup apparatus comprising:

a light modulation apparatus including a liquid crystal device of a guest-host type using a negative type liquid crystal as a host material, and a polarizing plate disposed in an optical path of light made incident on said liquid crystal device;

wherein said light modulation apparatus is disposed in an optical path of an optical system of said image pickup apparatus.

45. An image pickup apparatus according to claim 44, wherein said negative type liquid crystal of said liquid crystal device has a negative type dielectric constant anisotropy and a guest material of said liquid crystal device is a positive or negative type dichroic dye molecular material, and said polarizing plate is movable in or from the optical path.

46. An image pickup apparatus according to claim 45, wherein said polarizing plate is disposed in a

movable portion of a mechanical iris, and is movable in or from the optical path by operation of said movable portion of said mechanical iris.

47. An image pickup apparatus according to claim 44, wherein a cell of said liquid crystal device has a gap thickness of 5 μm or less.

48. An image pickup apparatus according to claim 44, wherein an alignment film of said liquid crystal device is rubbed by an anti-parallel rubbing process.

49. An image pickup apparatus comprising:

a light modulation apparatus including a liquid crystal device, and a pulse control unit for changing the transmittance of light made incident on said liquid crystal device from a current transmittance into a target transmittance by applying drive pulses controlled with at least two-steps to said liquid crystal device;

wherein said light modulation apparatus is disposed in an optical path of an optical system of said image pickup apparatus.

50. An image pickup apparatus according to claim 49, wherein a pulse height of each drive pulse is controlled with at least two-steps.

51. An image pickup apparatus according to claim 49, wherein a pulse width of each drive pulse is

controlled with at least two-steps.

52. An image pickup apparatus according to claim 49, further comprising a drive circuit unit, wherein the drive pulse is generated in synchronization with a clock generated by said drive circuit unit.

53. An image pickup apparatus according to claim 52, wherein said drive circuit unit is a drive circuit unit of an image pickup device disposed on a light outgoing side of said light modulation apparatus, and luminance information of the light emerged from said liquid crystal device is fed back to said control circuit unit, and the drive pulse is generated in synchronization with a clock generated by said drive circuit unit on the basis of a control signal supplied from said control circuit unit.

54. An image pickup apparatus according to claim 49, wherein said liquid crystal device is a guest-host type liquid crystal device.

55. An image pickup apparatus according to claim 54, wherein a host material of said liquid crystal device is a negative or positive type liquid crystal having a negative or positive type dielectric constant anisotropy.

56. An image pickup apparatus according to claim 54, wherein a guest material of said liquid crystal

device is a positive or negative type dichroic dye molecular material having a positive or negative type light absorption anisotropy.

57. An image pickup apparatus according to claim 49, further comprising a polarizing plate disposed in an optical path of light made incident on said liquid crystal device.

58. An image pickup apparatus according to claim 57, wherein said polarizing plate is movable in or from the optical path.

59. An image pickup apparatus according to claim 58, wherein said polarizing plate is disposed in a movable portion of a mechanical iris in such a manner as to be movable in or from the optical path by operation of said movable portion of said mechanical iris.

60. An image pickup apparatus according to claim 49, wherein a drive electrode of said liquid crystal device is formed at least over the entire region of an effective light transmission portion.

61. An image pickup apparatus comprising:

a light modulation apparatus including a liquid crystal device, a detection unit for detecting the intensity of transmission light having passed through said liquid crystal device or an environmental

temperature of said liquid crystal device, a control circuit unit for setting a target intensity of the transmission light depending on the environmental temperature of said liquid crystal device on the basis of a detection value supplied from said detection unit, and a drive signal generation unit for generating a drive signal used for generating the target intensity of the transmission light;

wherein said light modulation apparatus is disposed in an optical path of an optical system of said image pickup apparatus.

62. An image pickup apparatus according to claim 61, wherein the transmittance is controlled by monitoring the transmission light, feeding back the detection information to the control circuit unit, and adjusting the intensity of the transmission light at a constant value on the basis of the detection information by said control circuit unit, or by monitoring an environmental temperature of said liquid crystal device, feeding back the detection information to said control circuit unit, comparing the detection information with a predetermined characteristic value, and adjusting the intensity of the transmission light at a constant value on the basis of the compared detection information by said control

circuit unit.

63. An image pickup apparatus according to claim 61, wherein said control circuit unit generates each drive pulse having an AC waveform whose pulse height is modulated, or each drive pulse whose pulse width or pulse density is modulated.

64. An image pickup apparatus according to claim 62, wherein the pulse width of each drive pulse having a basic waveform is modulated and the pulse height of the drive pulse is controlled depending on the environmental temperature of said liquid crystal device, or the pulse height of each drive pulse having a basic waveform is modulated and the pulse width of the drive pulse is modulated depending on the environmental temperature of said liquid crystal device.

65. An image pickup apparatus according to claim 61, wherein each drive pulse is generated in synchronization of a clock generated by said drive circuit unit.

66. An image pickup apparatus according to claim 61, wherein said liquid crystal device is a guest-host type liquid crystal device.

67. An image pickup apparatus according to claim 66, wherein a host material of said liquid crystal device

is a negative or positive type liquid crystal having a negative or positive type dielectric constant anisotropy.

68. An image pickup apparatus according to claim 66, wherein a guest material of said liquid crystal device is a positive or negative type dichroic dye molecular material having a positive or negative type light absorption anisotropy.

69. An image pickup apparatus according to claim 61, further comprising a polarizing plate disposed in an optical path of light made incident on said liquid crystal device.

70. An image pickup apparatus according to claim 69, wherein said polarizing plate is movable in or from the optical path.

71. An image pickup apparatus according to claim 70, wherein said polarizing plate is disposed in a movable portion of a mechanical iris in such a manner as to be movable in or from the optical path by operation of said movable portion of said mechanical iris.

72. An image pickup apparatus according to claim 61, wherein a drive electrode of said liquid crystal device is formed at least over the entire region of an effective light transmission portion.

73. An image pickup apparatus comprising:

a light modulation apparatus including a liquid crystal device, a drive pulse generation unit for driving said liquid crystal device, and a pulse width control unit for modulating a pulse width of each drive pulse to be applied to said liquid crystal device, thereby controlling a transmittance of light made incident on said liquid crystal device;

wherein said light modulation apparatus is disposed in an optical path of an optical system of said image pickup apparatus.

74. An image pickup apparatus according to claim 73, wherein the pulse width of each drive pulse is modulated with its pulse height kept constant.

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75. An image pickup apparatus according to claim 73, wherein an average per unit time of positive and negative pulse heights of drive pulses applied between drive electrodes of said liquid crystal device upon modulation of the pulse width of each drive pulse is preferably nearly zero.

76. An image pickup apparatus according to claim 73, wherein the modulation of the pulse width of each drive pulse is performed in such a manner that the waveform of each drive pulse is present in a period of a basic frequency.

77. An image pickup apparatus according to claim 76, wherein the basic frequency and the modulated pulse width are adjusted in such a manner as to prevent the occurrence of flicker in stationary drive of said light modulation apparatus.

78. An image pickup apparatus according to claim 76, further comprising a drive circuit unit, wherein each drive pulse whose waveform is present in the period of the basic frequency is generated in synchronization with a clock generated by said drive circuit unit.

79. An image pickup apparatus according to claim 77, further comprising a control circuit unit, wherein luminance information of the light emerged from said liquid crystal device is fed back to said control circuit unit, and the pulse width of each drive pulse is modulated in synchronization with a clock generated by said drive circuit unit on the basis of a control signal supplied from said control circuit unit.

80. An image pickup apparatus according to claim 73, wherein said liquid crystal device is a guest-host type liquid crystal device,

81. An image pickup apparatus according to claim 80, wherein a host material is a negative or positive type liquid crystal having a negative or positive type

dielectric constant anisotropy.

82. An image pickup apparatus according to claim 80, wherein a guest material of said liquid crystal device is a positive or negative type dichroic dye molecular material having a positive or negative type light absorption anisotropy.

83. An image pickup apparatus according to claim 73, further comprising a polarizing plate disposed in an optical path of light made incident on said liquid crystal device.

84. An image pickup apparatus according to claim 83, wherein said polarizing plate is movable in or from the optical path.

85. An image pickup apparatus according to claim 84, wherein said polarizing plate is disposed in a movable portion of a mechanical iris in such a manner as to be movable in or from the optical path by operation of said movable portion of said mechanical iris.

86. An image pickup apparatus according to claim 73, wherein a drive electrode of said liquid crystal device is formed at least over the entire region of an effective light transmission portion.

87. A method of driving a light modulation apparatus including a liquid crystal device, comprising

the step of:

changing the transmittance of light made incident on said liquid crystal device from a current transmittance into a target transmittance by applying drive pulses controlled with at least two-steps to said liquid crystal device.

88. A method of driving a light modulation apparatus according to claim 87, wherein a pulse height of each drive pulse is controlled with at least two-steps.

89. A method of driving a light modulation apparatus according to claim 87, wherein a pulse width of each drive pulse is controlled with at least two-steps.

90. A method of driving a light modulation apparatus according to claim 87, wherein the drive pulse is generated in synchronization with a clock generated by a drive circuit unit provided in said light modulation apparatus.

91. A method of driving a light modulation apparatus according to claim 90, wherein luminance information of the light emerged from said liquid crystal device is fed back to a control circuit unit provided in said light modulation apparatus, and the drive pulse is generated in synchronization with a clock generated by said drive circuit unit on the basis of a control signal

supplied from said control circuit unit.

92. A method of driving a light modulation apparatus according to claim 87, wherein said liquid crystal device is a guest-host type liquid crystal device.

93. A method of driving a light modulation apparatus according to claim 92, wherein a host material of said liquid crystal device is a negative or positive type liquid crystal having a negative or positive type dielectric constant anisotropy.

94. A method of driving a light modulation apparatus according to claim 92, wherein a guest material of said liquid crystal device is a positive or negative type dichroic dye molecular material having a positive or negative type light absorption anisotropy.

95. A method of driving a light modulation apparatus according to claim 87, wherein a polarizing plate is disposed in an optical path of light made incident on said liquid crystal device.

96. A method of driving a light modulation apparatus according to claim 95, wherein said polarizing plate is movable in or from the optical path.

97. A method of driving a light modulation apparatus according to claim 96, wherein said polarizing plate is disposed in a movable portion of a mechanical

iris in such a manner as to be movable in or from the optical path by operation of said movable portion of said mechanical iris.

98. A method of driving a light modulation apparatus according to claim 87, wherein a drive electrode of said liquid crystal device is formed at least over the entire region of an effective light transmission portion.

99. A method of driving a light modulation apparatus including a liquid crystal device, comprising the steps of:

detecting the intensity of transmission light having passed through said liquid crystal device or an environmental temperature of said liquid crystal device;

setting a target intensity of the transmission light depending on the environmental temperature of said liquid crystal device on the basis of a detection value supplied from said detection unit; and

generating a drive signal used for generating the target intensity of the transmission light.

100. A method of driving a light modulation apparatus according to claim 99, wherein the transmittance is controlled by monitoring the transmission light, feeding back the detection

information to the control circuit unit, and adjusting the intensity of the transmission light at a constant value on the basis of the detection information by said control circuit unit, or by monitoring an environmental temperature of said liquid crystal device, feeding back the detection information to said control circuit unit, comparing the detection information with a predetermined characteristic value, and adjusting the intensity of the transmission light at a constant value on the basis of the compared detection information by said control circuit unit.

101. A method of driving a light modulation apparatus according to claim 99, wherein said control circuit unit generates each drive pulse having an AC waveform whose pulse height is modulated, or each drive pulse whose pulse width or pulse density is modulated.

102. A method of driving a light modulation apparatus according to claim 100, wherein the pulse width of each drive pulse having a basic waveform is modulated and the pulse height of the drive pulse is controlled depending on the environmental temperature of said liquid crystal device, or the pulse height of each drive pulse having a basic waveform is modulated and the pulse width of the drive pulse is modulated depending on the

environmental temperature of said liquid crystal device.

103. A method of driving a light modulation apparatus according to claim 99, wherein each drive pulse is generated in synchronization of a clock generated by a drive circuit unit provided in said light modulation apparatus.

104. A method of driving a light modulation apparatus according to claim 99, wherein said liquid crystal device is a guest-host type liquid crystal device.

105. A method of driving a light modulation apparatus according to claim 104, wherein a host material of said liquid crystal device is a negative or positive type liquid crystal having a negative or positive type dielectric constant anisotropy.

106. A method of driving a light modulation apparatus according to claim 104, wherein a guest material of said liquid crystal device is a positive or negative type dichroic dye molecular material having a positive or negative type light absorption anisotropy.

107. A method of driving a light modulation apparatus according to claim 99, wherein a polarizing plate is disposed in an optical path of light made incident on said liquid crystal device.

108. A method of driving a light modulation

apparatus according to claim 107, wherein said polarizing plate is movable in or from the optical path.

109. A method of driving a light modulation apparatus according to claim 108, wherein said polarizing plate is disposed in a movable portion of a mechanical iris in such a manner as to be movable in or from the optical path by operation of said movable portion of said mechanical iris.

110. A method of driving a light modulation apparatus according to claim 99, wherein a drive electrode of said liquid crystal device is formed at least over the entire region of an effective light transmission portion.

111. A method of driving a light modulation apparatus including a liquid crystal device, comprising the step of:

modulating a pulse width of each drive pulse to be applied to said liquid crystal device, thereby controlling a transmittance of light made incident on said liquid crystal device.

112. A method of driving a light modulation apparatus according to claim 111, wherein the pulse width of each drive pulse is modulated with its pulse height kept constant.

113. A method of driving a light modulation apparatus according to claim 111, wherein an average per unit time of positive and negative pulse heights of drive pulses applied between drive electrodes of said liquid crystal device upon modulation of the pulse width of each drive pulse is preferably nearly zero.

114. A method of driving a light modulation apparatus according to claim 111, wherein the modulation of the pulse width of each drive pulse is performed in such a manner that the waveform of each drive pulse is present in a period of a basic frequency.

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115. A method of driving a light modulation apparatus according to claim 114, wherein the basic frequency and the modulated pulse width are adjusted in such a manner as to prevent the occurrence of flicker in stationary drive of said light modulation apparatus.

116. A method of driving a light modulation apparatus according to claim 114, wherein each drive pulse whose waveform is present in the period of the basic frequency is generated in synchronization with a clock generated by a drive circuit unit provided in said light modulation apparatus.

117. A method of driving a light modulation apparatus according to claim 116, wherein luminance

information of the light emerged from said liquid crystal device is fed back to a control circuit unit provided in said light modulation apparatus, and the pulse width of each drive pulse is modulated in synchronization with a clock generated by said drive circuit unit on the basis of a control signal supplied from said control circuit unit.

118. A method of driving a light modulation apparatus according to claim 111, wherein said liquid crystal device is a guest-host type liquid crystal device.

119. A method of driving a light modulation apparatus according to claim 118, wherein a host material of said liquid crystal device is a negative or positive type liquid crystal having a negative or positive type dielectric constant anisotropy.

120. A method of driving a light modulation apparatus according to claim 118, wherein a guest material of said liquid crystal device is a positive or negative type dichroic dye molecular material having a positive or negative type light absorption anisotropy.

121. A method of driving a light modulation apparatus according to claim 111, wherein a polarizing plate is disposed in an optical path of light made incident on said liquid crystal device.

122. A method of driving a light modulation apparatus according to claim 121, wherein said polarizing plate is movable in or from the optical path.

123. A method of driving a light modulation apparatus according to claim 122, wherein said polarizing plate is disposed in a movable portion of a mechanical iris in such a manner as to be movable in or from the optical path by operation of said movable portion of said mechanical iris.

124. A method of driving a light modulation apparatus according to claim 111, wherein a drive electrode of said liquid crystal device is formed at least over the entire region of an effective light transmission portion.

125. A method of driving an image pickup apparatus in which a liquid crystal device is disposed in an optical path of an optical system of said image pickup apparatus, comprising the step of:

changing the transmittance of light made incident on said liquid crystal device from a current transmittance into a target transmittance by applying drive pulses controlled with at least two-steps to said liquid crystal device.

126. A method of driving an image pickup apparatus

according to claim 125, wherein a pulse height of each drive pulse is controlled with at least two-steps.

127. A method of driving an image pickup apparatus according to claim 125, wherein a pulse width of each drive pulse is controlled with at least two-steps.

128. A method of driving an image pickup apparatus according to claim 125, wherein the drive pulse is generated in synchronization with a clock generated by a drive circuit unit provided in said light modulation apparatus.

129. A method of driving an image pickup apparatus according to claim 125, wherein a drive circuit unit of an image pickup device is disposed on a light outgoing side of said light modulation apparatus; and luminance information of the light emerged from said liquid crystal device is fed back to a control circuit unit provided in said light modulation apparatus, and the drive pulse is generated in synchronization with a clock generated by said drive circuit unit on the basis of a control signal supplied from said control circuit unit.

130. A method of driving an image pickup apparatus according to claim 125, wherein said liquid crystal device is a guest-host type liquid crystal device.

131. A method of driving an image pickup apparatus

according to claim 130, wherein a host material of said liquid crystal device is a negative or positive type liquid crystal having a negative or positive type dielectric constant anisotropy.

132. A method of driving an image pickup apparatus according to claim 130, wherein a guest material of said liquid crystal device is a positive or negative type dichroic dye molecular material having a positive or negative type light absorption anisotropy.

133. A method of driving an image pickup apparatus according to claim 125, wherein a polarizing plate is disposed in an optical path of light made incident on said liquid crystal device.

134. A method of driving an image pickup apparatus according to claim 133, wherein said polarizing plate is movable in or from the optical path.

135. A method of driving an image pickup apparatus according to claim 134, wherein said polarizing plate is disposed in a movable portion of a mechanical iris in such a manner as to be movable in or from the optical path by operation of said movable portion of said mechanical iris.

136. A method of driving an image pickup apparatus according to claim 125, wherein a drive electrode of said

liquid crystal device is formed at least over the entire region of an effective light transmission portion.

137. A method of driving an image pickup apparatus in which a liquid crystal device is disposed in an optical path of an optical system of said image pickup apparatus, comprising the steps of:

detecting the intensity of transmission light having passed through said liquid crystal device or an environmental temperature of said liquid crystal device;

setting a target intensity of the transmission light depending on the environmental temperature of said liquid crystal device on the basis of a detection value supplied from said detection unit; and

generating a drive signal used for generating the target intensity of the transmission light.

138. A method of driving an image pickup apparatus according to claim 137, wherein the transmittance is controlled by monitoring the transmission light, feeding back the detection information to the control circuit unit, and adjusting the intensity of the transmission light at a constant value on the basis of the detection information by said control circuit unit, or by monitoring an environmental temperature of said liquid crystal device, feeding back the detection information to

said control circuit unit, comparing the detection information with a predetermined characteristic value, and adjusting the intensity of the transmission light at a constant value on the basis of the compared detection information by said control circuit unit.

139. A method of driving an image pickup apparatus according to claim 137, wherein said control circuit unit generates each drive pulse having an AC waveform whose pulse height is modulated, or each drive pulse whose pulse width or pulse density is modulated.

140. A method of driving an image pickup apparatus according to claim 138, wherein the pulse width of each drive pulse having a basic waveform is modulated and the pulse height of the drive pulse is controlled depending on the environmental temperature of said liquid crystal device, or the pulse height of each drive pulse having a basic waveform is modulated and the pulse width of the drive pulse is modulated depending on the environmental temperature of said liquid crystal device.

141. A method of driving an image pickup apparatus according to claim 137, wherein each drive pulse is generated in synchronization of a clock generated by a drive circuit unit provided in said light modulation apparatus.

142. A method of driving an image pickup apparatus according to claim 137, wherein said liquid crystal device is a guest-host type liquid crystal device.

143. A method of driving an image pickup apparatus according to claim 142, wherein a host material of said liquid crystal device is a negative or positive type liquid crystal having a negative or positive type dielectric constant anisotropy.

144. A method of driving an image pickup apparatus according to claim 142, wherein a guest material of said liquid crystal device is a positive or negative type dichroic dye molecular material having a positive or negative type light absorption anisotropy.

145. A method of driving an image pickup apparatus according to claim 137, wherein a polarizing plate is disposed in an optical path of light made incident on said liquid crystal device.

146. A method of driving an image pickup apparatus according to claim 137, wherein said polarizing plate is movable in or from the optical path.

147. A method of driving an image pickup apparatus according to claim 146, wherein said polarizing plate is disposed in a movable portion of a mechanical iris in such a manner as to be movable in or from the optical

path by operation of said movable portion of said mechanical iris.

148. A method of driving an image pickup apparatus according to claim 137, wherein a drive electrode of said liquid crystal device is formed at least over the entire region of an effective light transmission portion.

149. A method of driving an image pickup apparatus in which a liquid crystal device is disposed in an optical path of an optical system of said image pickup apparatus, comprising the step of:

modulating a pulse width of each drive pulse to be applied to said liquid crystal device, thereby controlling a transmittance of light made incident on said liquid crystal device.

Subt. C7

150. A method of driving an image pickup apparatus according to claim 149, wherein the pulse width of each drive pulse is modulated with its pulse height kept constant.

151. A method of driving an image pickup apparatus according to claim 149, wherein an average per unit time of positive and negative pulse heights of drive pulses applied between drive electrodes of said liquid crystal device upon modulation of the pulse width of each drive pulse is preferably nearly zero.

152. A method of driving an image pickup apparatus according to claim 149, wherein the modulation of the pulse width of each drive pulse is performed in such a manner that the waveform of each drive pulse is present in a period of a basic frequency.

153. A method of driving an image pickup apparatus according to claim 152, wherein the basic frequency and the modulated pulse width are adjusted in such a manner as to prevent the occurrence of flicker in stationary drive of said light modulation apparatus.

154. A method of driving an image pickup apparatus according to claim 152, wherein each drive pulse whose waveform is present in the period of the basic frequency is generated in synchronization with a clock generated by a drive circuit unit provided in said light modulation apparatus.

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155. A method of driving an image pickup apparatus according to claim 149, wherein luminance information of the light emerged from said liquid crystal device is fed back to a control circuit unit provided in said light modulation apparatus, and the pulse width of each drive pulse is modulated in synchronization with a clock generated by said drive circuit unit on the basis of a control signal supplied from said control circuit unit.

156. A method of driving an image pickup apparatus according to claim 149, wherein said liquid crystal device is a guest-host type liquid crystal device.

157. A method of driving an image pickup apparatus according to claim 156, wherein a host material of said liquid crystal device is a negative or positive type liquid crystal having a negative or positive type dielectric constant anisotropy.

158. A method of driving an image pickup apparatus according to claim 156, wherein a guest material of said liquid crystal device is a positive or negative type dichroic dye molecular material having a positive or negative type light absorption anisotropy.

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159. A method of driving an image pickup apparatus according to claim 149, wherein a polarizing plate is disposed in an optical path of light made incident on said liquid crystal device.

160. A method of driving an image pickup apparatus according to claim 159, wherein said polarizing plate is movable in or from the optical path.

161. A method of driving an image pickup apparatus according to claim 160, wherein said polarizing plate is disposed in a movable portion of a mechanical iris in such a manner as to be movable in or from the optical

path by operation of said movable portion of said mechanical iris.

Subt. C10

162. A method of driving an image pickup apparatus according to claim 149, wherein a drive electrode of said liquid crystal device is formed at least over the entire region of an effective light transmission portion.